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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,003	01/08/2004	Takeshi Nakajima	04002 /LH	7123
1933 7590 11/06/2007 FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 Fifth Avenue 16TH Floor NEW YORK, NY 10001-7708			EXAMINER GE, YUZHEN	
			ART UNIT 2624	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/754,003

Applicant(s)

NAKAJIMA ET AL.

Examiner

Yuzhen Ge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-17, 19-35 is/are rejected.
- 7) ☒ Claim(s) 9, 18 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 101***

2. Claims 19-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 18027 define a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium, and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a computer program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Currently in TC 2600, it is required explicitly to include "computer-readable medium", "encoded" (or "storing", "embodied with a", "encoded with a", "having a stored", "having an encoded"), and "computer program" in the claim language to make it explicitly a statutory subject matter.

***Claim Rejections - 35 USC § 102***

3. Claims 1-7, 10-16, 19-25 and 28-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuura (US Patent 6,823,090 B2).

Regarding claim 1, Matsuura teaches a method for processing image signals, comprising the steps of:

reading an image recorded on a recording medium so as to generate image signals representing said image (Fig. 1, an image is stored in a memory and when processing, it is read, col. 7, lines 28-50);

applying a multi-resolution conversion processing of at least level 1, which is capable of reducing an image size of said image signals, to said image signals read in said reading step, so as to generate first-converted image signals from said image signals (Figs. 4A-4B and 5B, col. 5, line 53-col. 6, line 16, the conversion is from Fig. 4A to Fig. 4B, 402 represents the reduced sized image, a dwt is a multi-resolution conversion); and

applying a Dyadic Wavelet transform of at least level 1 to low frequency band component signals included in said first-converted image signals generated in said applying step of said multi-resolution conversion processing, so as to generate second-converted image signals from said first-converted image signals (Figs. 4A-4B and 5B, col. 5, line 53-col. 6, line 16, Fig. 5B is the results of a Dyadic wavelet transform because the LL, HL2, LH2 and HH2 is the result of transforming LL1 after the first conversion, the transform/conversion is Dyadic because the transform shrinks both dimensions by 2).

wherein an image size of said first-converted image signals is smaller than that of said image signals (Figs. 4A-4D, the image 402 in Fig. 4B is smaller than that in Fig. 4A).

Regarding claim 2, Matsuura teaches the method of claim 1, further comprising the step of: applying a first image processing to said second-converted image signals generated in said applying step of said Dyadic Wavelet transform (col. 5, lines 42-48, Figs. 3-5B).

Regarding claim 3, Matsuura teaches the method of claim 1, further comprising the step of: applying a first image processing to high frequency band component signals included in said second-converted image signals generated in said applying step of said Dyadic Wavelet transform (col. 5, lines 42-48, Figs. 3-5B, the image processing can be applied to wavelet coefficients of higher level).

Regarding claim 4, Matsuura teaches the method of claim 3, wherein said first image processing includes such a processing that a signal intensity of a specific pixel, which fulfils a predetermined condition established in advance among pixels represented by said high frequency band component signals, is suppressed in said applying step of said first image processing (col. 4, lines 16-col. 5, line 40, Figs. 3-5B).

Regarding claim 5, Matsuura teaches the method of claim 2, further comprising the step of: applying a second image processing to said first-converted image signals generated in said applying step of said multi-resolution conversion processing (Figs. 3-5B, col. 4, lines 16-col. 5,

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line 48, the processing can be applied to a plurality of levels and therefore for the image processing that applies to the second level is regarded as the second image processing).

Regarding claim 6, Matsuura teaches the method of claim 2, further comprising the step of: applying a second image processing to high frequency band component signals included in said first-converted image signals generated in said applying step of said multi-resolution conversion processing (Figs. 3-5B, col. 4, lines 16-col. 5, line 48, the processing can be applied to a plurality of levels and therefore for the image processing that applies to the second level is regarded as the second image processing).

Regarding claim 7, Matsuura teaches the method of claim 6, wherein said second image processing includes such a processing that a signal intensity of a specific pixel, which fulfils a predetermined condition established in advance among pixels represented by said high frequency band component signals, is suppressed in said applying step of said second image processing (Figs. 3-5B, col. 4, line 16-col. 5, line 48).

Claims 10-16 are the corresponding apparatus claims of claims 1-7. Matsuura teaches an apparatus (Fig. 1). Thus Matsuura teaches claims 10-16 as evidently explained in the above-cited passages for claims 1-7.

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Claims 19-25 are the corresponding computer program claims of claims 1-7. Matsuura teaches a computer program (Fig. 1, col. 7, lines 33-62). Thus Matsuura teaches claims 19-25 as evidently explained in the above-cited passages for claims 1-7.

Claims 28-34 adds to claims 10-16 the following limitations:

a processing section to process said image signals so as to generate an output image signals representing said output image; and

a recording section to record said output image onto said outputting medium, based on said output image signals generated by said processing section.

Matsuura teaches

a processing section to process said image signals so as to generate an output image signals representing said output image (Fig. 1, col. 7, lines 28-32, a computer is a processor); and

a recording section to record said output image onto said outputting medium, based on said output image signals generated by said processing section (Fig.1, image display is regarded as the outputting medium, col. 7, lines 28-32, a printer also prints to an outputting medium).

Thus Matsuura teaches claims 28-34 as evidently explained in the above-cited passages.

#### ***Claim Rejections - 35 USC § 103***

4. Claims 8, 17, 26, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura in view of Vincent (US Patent 6,741,739).

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Regarding claim 8, Matsuura teaches the method of claim 1. However they do not explicitly teach wherein said multi-resolution conversion is an orthogonal wavelet conversion or a bi-orthogonal wavelet conversion. The linear wavelet transform used by Matsuura can be orthogonal also (col. 5, line 53-col. 6, line 39). In the same field of endeavor, Vincent teaches to use a multi-resolution conversion that is an orthogonal or a bi-orthogonal wavelet conversion to transform image signal (Figs. 14-16). It is desirable to use orthogonal or bi-orthogonal wavelet transform because of the mathematical properties of these transforms that enable efficient computation of coefficients. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use a multi-resolution conversion that is an orthogonal wavelet conversion or a bi-orthogonal wavelet conversion so that efficient computation can be achieved.

Claim 17 is the corresponding apparatus claims of claim 8. Matsuura teaches an apparatus (Fig. 1). Thus Matsuura and Vincent teach claim 17 as evidently explained in the above-cited passages for claim 8.

Claim 26 is the corresponding computer program claims of claim 8. Matsuura teaches a computer program (Fig. 1, col. 7, lines 33-62). Thus Matsuura and Vincent teach claim 26 as evidently explained in the above-cited passages for claim 8.

Claim 35 adds to claim 17 the following limitations:



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a processing section to process said image signals so as to generate an output image signals representing said output image; and

a recording section to record said output image onto said outputting medium, based on said output image signals generated by said processing section.

Matsuura teaches

a processing section to process said image signals so as to generate an output image signals representing said output image (Fig. 1, col. 7, lines 28-32, a computer is a processor/processing section); and

a recording section to record said output image onto said outputting medium, based on said output image signals generated by said processing section (Fig. 1, image display is regarded as the outputting medium, col. 7, lines 28-32, a printer also prints to an outputting medium).

Thus Matsuura teaches claims 35 as evidently explained in the above-cited passages.

#### ***Allowable Subject Matter***

5. Claims 9, 18, and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter. The following is an examiner's statement of reasons for allowance. The prior art fails to teach the listed claims each of which specifically

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comprises the following listed feature(s) in combination with other limitations in the respective claims:

--determining a changeover level from said multi-resolution conversion processing to said Dyadic Wavelet transform, based on a resolution of said image signals read in said reading step; wherein said multi-resolution conversion processing is applied to said image signals according to said changeover level determined in said determining step, and said Dyadic Wavelet transform is applied to said low frequency band component signals according to said changeover level determined in said determining step.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuzhen Ge whose telephone number is 571-272 7636. The examiner can normally be reached on 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yuzhen Ge  
Examiner  
Art Unit 2624

WENPENG CHEN  
PRIMARY EXAMINER



6/21/07